37-40 per 1000 for hypertension, 22-26 for heart disease, 15-18 for diabetes, and 6-9 for cancer, COPD, and stroke. The strongest predictors of disease onset were insurance status, behavioral risk factors, and comorbid conditions. **CONCLUSIONS:** The Population Health Model we developed is a health economic evaluation tool, which can predict future health outcomes for a cohort of Massachusetts residents over 50 based on their individual characteristics. The simulation results were validated using selected national datasets (US and Canada). Our next step is to predict health care costs over time based on the health status micro-simulation and information from both the Medical Expenditure Panel Survey and Massachusetts insurance claims data.

MO4

AN EMPIRICAL COMPARISON OF A MARKOV COHORT MODEL AND A DISCRETE EVENT SIMULATION FOR COST-EFFECTIVENESS ANALYSIS IN ORTHOPAEDICS

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OBJECTIVES: Discrete event simulation (DES) models are becoming more popular with modellers undertaking cost-effectiveness analyses. However, there is a dearth of empirical examples directly comparing DES with Markov cohort models (MM). This study applied these methods to a common dataset describing an orthopaedic physiotherapy screening clinic and multidisciplinary service (OPSC) versus usual orthopaedic care (UOC) to compare the empirical differences between these modelling methods and evaluate the cost-effectiveness of OPSC. **METHODS:** A MM and a DES were constructed using TreeAge Pro and Simul8, respectively. Data were obtained from hospital administrative sources and a retrospective chart audit of 980 patients with a primary diagnosis involving the knee, shoulder or lumbar spine attending an OPSC. Detailed analyses of disaggregated cost and effect estimates generated by each model are performed. Uncertainty in each model is investigated using probabilistic sensitivity analyses (PSA). **RESULTS:** Both economic models generated similar costs estimates (MM-UOC= $1287; DES-UOC = $1322; MM-OPSC= $1403; DES-OPSC=$1419; MM incremental cost (IC)=$116; DES IC=$97). Each model generated comparable quality-adjusted life year saved (QALY) estimates (MM-UOC=2.74; DES-UOC=2.72; MM-OPSC=2.81; DES-OPSC=2.79; MM incremental effect (IE)=0.066; DES IE=0.068). The incremental cost-effectiveness ratios (ICERs) generated by the MM and DES were $1756 and $1418 per QALY, respectively. The DES model required a considerably longer time to develop and to run (DES runtime=80min; MM run-time=11.8 seconds). However, the DES provided more explicit timing of events. **CONCLUSIONS:** The MM and DES generated similar ICER estimates, which suggest OPSC is cost-effective when compared to UOC. Empirical comparisons using the same data source have highlighted differences in development and computational time between the MM and DES. The explicit management of time in DES also has the potential to generate different results than described by the MM. The limitations of this study are also considered.

PATIENT PREFERENCE STUDIES

PP1

PREFERENCES FOR PROSTATE CANCER OUTCOMES: A COMPARISON OF PATIENT AND GENERAL POPULATION PERSPECTIVES

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OBJECTIVES: Preference values for prostate cancer specific health states vary greatly between studies and are influenced by the method of elicitation and study population. Given the strengths, limitations, and potential for biases of both patient and societal preference values, understanding the magnitude of difference is pertinent for application in cost-effectiveness analysis. The objective of this study was to compare patient preferences with those of the general population for several prostate cancer specific health states. **METHODS:** Health state descriptions were developed with attributes that varied across five different health domains pertinent to men with prostate cancer: sexual function, urinary function, bowel function, pain, and emotional well-being. Men with prostate cancer and a representation of the general population (men and women) assigned preferences to 16 health states using a visual analog scale and standard gamble methodology. Study subjects also completed the Health Utilities Index mark 3 (HUI3) to obtain utility values using a generic preference measure. **RESULTS:** A total of 84 participants were enrolled (n= 43 prostate cancer; n=41 general population) and completed the health state valuations. The mean age of the men with prostate cancer was 63.4 years (5.46) and 38.8 years (10.7) for the general population group. There was a statistically significant difference in HUI3 current health ratings between groups: men with prostate cancer HUI3: 0.74 (standard error; se=0.23) vs 0.88 (se=0.19) for the general population (p=0.006). The mean standard gamble utility values for the prostate cancer health states ranged from 0.85 to 0.46 among men with prostate cancer and from 0.81 to 0.32 among the non-cancer group. Two-group mean comparison test did not indicate statistical significance for the 16 health states (p-value: 0.93 - 0.09). **CONCLUSIONS:** There were no statistically significant differences in standard gamble valuations of prostate cancer specific health states when comparing the patient perspective with the societal perspective.

PP2

MAXIMUM DIFFERENCE SCALING: A NOVEL TECHNIQUE FOR DETERMINING PATIENT PREFERENCES

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OBJECTIVES: Maximum Difference Scaling (MaxDiff) is a survey research technique for obtaining preference scores for a set of items that provides greater discrimination between items while indicating how strongly an item is preferred. This study investigated the use of MaxDiff as a means of determining patient-reported importance of medication treatment attributes. **METHODS:** MaxDiff was used in a survey of rheumatoid arthritis (RA) patients to determine the importance and relative rank of specific attributes of RA treatments. The following attributes were selected based upon literature review and opinions of the research team: 1) Reduces pain; 2) Potential side effects; 3) How often treatment taken; 4) How treatment is given; 5) Where treatment is given; 6) Personal costs; 7) Works quickly; 8) How long treatment effects last; 9) Keeps disease from getting worse; and 10) Improves physical abilities. Respondents were shown 10 sets of 4 attributes and, for each set, were asked to indicate the RA treatment attribute that was most important and least important to them. The attribute sets were selected using an experimental design that showed each attribute an equal number of times and in different order within the sets. Hierarchical Bayesian techniques were used to derive respondent-level attribute importance scores and, based on the importance scores a relative rank order was developed for each attribute. **RESULTS:** Based on 291 surveys, MaxDiff attribute importance scores ranged from 13 to 209 with higher scores indicating increased importance. Preventing the disease from getting worse, improving physical abilities, and reduction in pain were the most important RA treatment attributes, all having scores >195, while the 'how', 'when', and 'where' treatment administration attributes were the least important, all having scores <15. **CONCLUSIONS:** MaxDiff importance scores demonstrated discrimination among attributes and respondents and should be considered as an alternative to more traditional ranking and rating approaches.

PP3

HOW CANADIANS VALUE RARE DISEASES GIVEN THEIR OPPORTUNITY COST?

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Expensive rare disease treatments pose a problem for decision makers who are expected to judiciously allocate health care dollars to maximize benefit. If the Canadian public prioritize rare diseases for funding given their opportunity cost, this would reveal their value for rare disease treatment. This preference would in turn justify devoting limited resources to these conditions. **OBJECTIVES:** Determine whether society 1) values the treatment of rare diseases over common diseases and, 2) accepts the opportunity costs associated with funding high-cost medications. **METHODS:** In an online survey, 2211 subjects from across Canada were presented with 13 scenarios asking them choose between funding a rare disease, and either a common disease or societal benefit in a simple trade-off design. Embedded in the scenarios were factors and values related to rarity. **RESULTS:** The rare disease was favoured by the majority of subjects in only 2 scenarios out of 9 where the alternate was a common disease, and in 3 scenarios out of 4 where the alternate was a societal benefit. Canadians preferred to fund rare disease treatment over education, recreation or smoking cessation programs. Factors which resulted in greater than 30% of subjects selecting the rare disease included unmet need, disease severity and young age. As treatment costs for the rare disease increased, it was increasingly less likely to be funded over the common disease. Knowing someone with, or having a rare disease was significantly associated with favouring the rare disease in 10 out of 13 scenarios. **CONCLUSIONS:** Canadians prefer to use resources to fund treatment of rare diseases over other societal benefits including recreation and education; however, they prefer to maximize health care resources to benefit the greatest number of people. Rare diseases are valued by Canadians only when the opportunity cost to treat them does not take away from common disease treatments.

PP4

PATIENT PREFERENCES OF TREATMENTS AMONG WOMEN WITH METASTATIC BREAST CANCER: RESULTS FROM A CONJOINT ANALYSIS STUDY

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OBJECTIVES: Although a growing number of treatment options are available for metastatic breast cancer (mBC), each treatment is associated with its own various advantages and disadvantages. It remains unclear how patients value the different treatment characteristics and whether preferences vary as a function of prior treatment experience. **METHODS:** Data were collected through a cross-sectional Internet survey of 181 women diagnosed with mBC who had prior experience with either a taxane, paclitaxel, or docetaxel. Patients provided demographic, health history, and health outcomes information. Participants also completed a choice-based conjoint exercise that included a series of choice questions. Each choice question included a pair of hypothetical treatments which were presented in terms of eight safety attributes (alopecia, motor neuropathy, myalgia/arthralgia, nausea/vomiting, fatigue, neutropenia, mucositis/stomatitis, and diarrhea), one effectiveness attribute, one dosing regimen attribute, and one quality of life attribute. Choice task data were analyzed using hierarchical Bayesian logistic regression models. Relative importances (RI) were reported and provide the magnitude of each attribute's influence on treatment preference on a common ratio scale (e.g., an RI of 50% is twice as influential as an RI of 25%). **RESULTS:** Women had a mean age of 52.24 years and 93.92% were non-Hispanic white. Effectiveness (RI=33.49%) was most strongly associated with treatment preference, followed by alopecia (RI=21.32%), fatigue (RI=12.46%), neutropenia (RI=10.37%), and quality of life (RI=7.69%). Myalgia (RI=0.48%), mucositis (RI=0.43%), and dosing regimen (RI=0.14%) had the weakest associations with preference. These preferences did not vary as a function of chemotherapy experience. **CONCLUSIONS:** Despite the risk of serious adverse events, incremental survival (1-3 months) is influential in patient preferences for chemotherapy. Furthermore, quality of life improvements were more influential in treatment preferences than most adverse events. These findings help clarify the patient perspective of mBC treatments which, if aligned with prescribing patterns, may maximize treatment satisfaction and adherence.